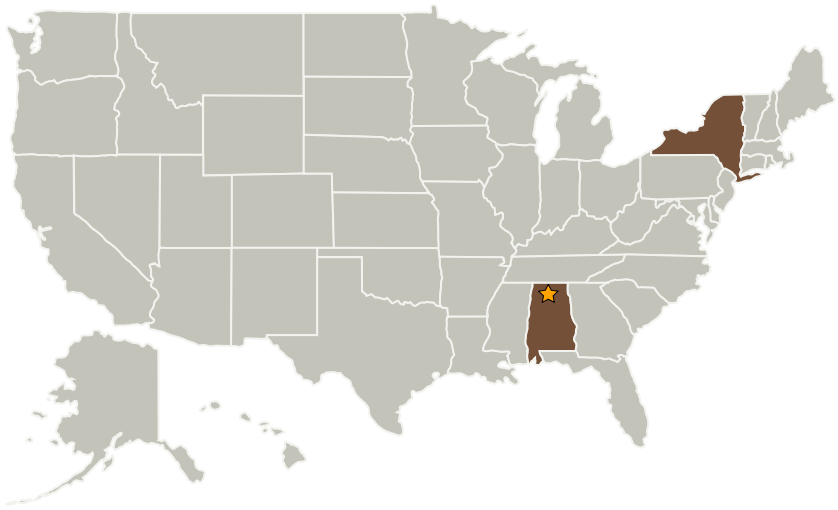
WGM Resonators for Proteomic Analysis, Phase I

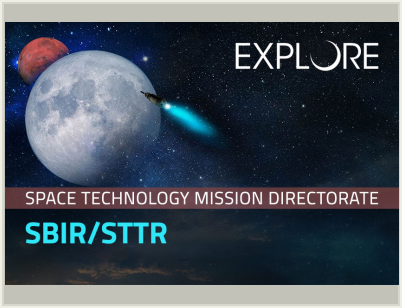
Completed Technology Project (2004 - 2004)

Project Introduction

Due to the extensive amounts of data generated from the genome sequencing projects, the focus of genomics has shifted from elucidating DNA sequence to the interpretation of gene function. In addition, as proteins are most often the targets of drugs, a method of studying the genome at the protein level is fueling the pharmaceutical industry?s interest in proteomics. By interpreting the interacting partners of a protein of interest and stimuli that affect these conditions, much can be learned about the protein?s function. To help fuel the proteomics revolution, Agave BioSystems, in collaboration with Dr. Robert Boyd, of the Institute of Optics at the University of Rochester, proposes to develop an ultra sensitive analytical tool based on whispering gallery mode (WGM) resonator technology for the detection of protein-protein interactions. Simulations have demonstrated that WGM resonator technology can provide several orders of magnitude greater sensitivity as compared to current detection mechanisms such as SPR. The microfabrication of this detection mechanism, coupled with microfluidic systems to be developed in the Phase II, will result in a disposable biochip that can be readily used in a small, compact and portable instrument.

Primary U.S. Work Locations and Key Partners





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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Marshall Space Flight Center (MSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Marshall Space Flight Center(MSFC)	Lead Organization	NASA Center	Huntsville, Alabama
Agave BioSystems, Inc.	Supporting Organization	Industry	Ithaca, New York

Primary U.S. Work Locations	
Alabama	New York

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Joel Tabb

Technology Areas

Primary:

- TX01 Propulsion Systems
  - TX01.3 Aero Propulsion
    - TX01.3.12 Alternative Low Carbon Jet Fuel